

CLAIMS

1. A cross-over of first and second separate elongate conductive interconnects,
5 comprising:

a first elongate conductive interconnect;

a second elongate conductive interconnect comprising:

a first conductive portion separate from the first elongate conductive
interconnect;

10 a second conductive portion separate from the first elongate conductive
interconnect and the first conductive portion; and

a third electro-deposited metal portion interconnecting the first and second
conductive portions; and

first insulating material between the first elongate conductive interconnect and
15 the third electro-deposited metal portion of the second elongate interconnect; and
a substrate,

wherein the first insulating material and the third electro-deposited metal portion
are positioned between the substrate and the first elongate conductive
interconnect.

20

2. A cross-over as claimed in claim 1, wherein the first and second elongate
conductive interconnects are formed from electro-deposited metal.

3. A cross-over as claimed in claim 1 or 2, wherein the first elongate conductive
25 interconnect has a necked portion adjacent the first insulating material.

4. A cross-over as claimed in claim 3, wherein the first and second conductive
portions are located on opposite sides of the necked portion of the first elongate
conductive interconnect.

30

5. A cross-over as claimed in claim 3 or 4, wherein the third electro-deposited

metal portion bridges the first insulating layer where it is adjacent the necked portion of the first elongate conductive interconnect.

5 6. A cross-over as claimed in any preceding claim, having a first layer and a second layer, wherein the first elongate conductive interconnect occupies at least the first layer and the second elongate conductive interconnect occupies the first and second layers.

10 7. A cross-over as claimed in claim 6, wherein the first layer comprises at least a portion of the first elongate conductive interconnect, the first conductive portion, the second conductive portion and second insulating material between the first metal portion and the first elongate conductive interconnect and between the second metal portion and the first elongate conductive interconnect and the second layer comprises first insulating material adjacent at least a portion of the
15 first elongate conductive interconnect, and the third interconnecting metal portion.

20 8. A cross-over as claimed in claim 7, wherein the first and second insulating material enclose a portion of the first elongate conductive interconnect.

9. A cross-over as claimed in any preceding claim, wherein the first insulating material forms a layer that is elongated in the same direction as the elongate first conductive layer.

25 10. A cross-over as claimed in any preceding claim, wherein the first elongate conductive layer is formed wholly from metal.

11. A cross-over as claimed in any preceding claim, wherein the first elongate conductive layer comprises electro-deposited metal.

30

12. A cross-over as claimed in any preceding claim, wherein the first elongate

conductive interconnect is formed from the same material as the first and second portions of the second conductive interconnect.

13. A cross-over as claimed in claim 12, wherein the first and second portions of
5 the second conductive interconnect are formed from a different material to the third electro-deposited metal portion.

14. A cross-over as claimed in any preceding claim, wherein the first and second
10 conductive portions comprises electro-deposited metal and each extends in a second direction at an angle to the first direction of elongation of the first elongate conductive member.

15. A cross-over as claimed in claim 14, wherein the angle is substantially ninety degrees.

16. A cross-over as claimed in any preceding claim, wherein the third electro-deposited metal portion contains brightening agent.

17. A cross-over as claimed in any preceding claim, wherein the third metal
20 portion bridges the first insulating material.

18. A cross-over as claimed in claim 17, wherein the third metal portion is encapsulated and underlies the first insulating material.

25 19. A cross-over as claimed in any preceding claim having a substantially planar surface including substantially planar surface portions of the first and second conductive interconnects.

30 20. A cross-over as claimed in any preceding claim further comprising a substrate and insulating adhesive material between the substrate and the first and second conductive interconnects.

21. A cross-over as claimed in claim 20, wherein the substrate is flexible

22. A cross-over as claimed in claim 20 or 21, wherein the substrate is made
5 from plastics.

23. An active-matrix display, comprising a plurality of cross-overs as claimed
in any preceding claim.

10 24. A method of crossing a first elongate conductive interconnect and a separate
second elongate conductive interconnect in an integrated circuit, comprising:
a) forming a first elongate conductive interconnect ;
b) forming a first conductive portion separate from the first elongate conductive
interconnect;
15 c) forming a second conductive portion separate from the first elongate
conductive interconnect;
d) depositing first insulating material over at least a portion of the first elongate
conductive interconnect; and
e) electro-depositing metal to form a third electro-deposited metal portion
20 extending over the first insulating material to interconnect the first and second
conductive portions and form the second elongate conductive interconnect; and
f) transferring the structure formed in steps a) to e) to a substrate.

25. A method as claimed in claim 24, wherein step d) involves forming a first
25 insulating layer over a necked portion of the first elongate conductive
interconnect.

26. A method as claimed in claim 24 or 25, wherein step d) involves the selective
retention of photo-curable material.

30

27. A method as claimed in any one of claims 24 to 26, wherein, in step a), the

first elongate conductive interconnect is formed by electro-deposition of metal.

28. A method as claimed in any one of claims 24 to 27, wherein in step b), the
first conductive portion of the second elongate conductive interconnect is formed
5 by electro-deposition of metal.

29. A method as claimed in any one of claims 24 to 28, wherein, in step c), the
second conductive portion of the second elongate conductive interconnect is
formed by electro-deposition of metal.
10

30. A method as claimed in any one of claims 24 to 29, wherein step a), b) and
c) occur at the same time during a single metal electro-deposition process.

31. A method as claimed in 30, wherein the metal electro-deposition process
15 involves masked electrolytic deposition.

32. A method as claimed in claim 31, wherein the mask is second insulator
material that is incorporated into the final structure.

20 33. A method as claimed in any one of claims 30 to 32, wherein the single
electro-deposition process is an anisotropic electrolytic deposition process.

34. A method as claimed in any one of claims 24 to 33, wherein step e) involves
substantially isotropic electrolytic deposition of metal.
25

35. A method as claimed as claimed in any one of claims 24 to 34, wherein the
third metal portion is formed at right angles to the first elongate conductive
interconnect.

30 36. A cross-over formed by the method of any one of claims 24 to 35.

37. A cross-over of first and second conductive means, comprising:

first conductive means;

second conductive means comprising:

a first conductive portion separate from the first conductive means;

5 a second conductive portion separate from the first conductive means and the first conductive portion; and

a third electro-deposited metal portion interconnecting the first and second conductive portions; and

10 first insulating means for insulating the first conductive means from the second conductive means wherein the first insulating means directly contacts the third electro-deposited metal portion.

38. A cross-over or method substantially as hereinbefore described with

15 reference to and/or as shown in the accompanying drawings.

39. Any novel subject matter or combination including novel subject matter disclosed, whether or not within the scope of or relating to the same invention as the preceding claims.

20